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SOURCE Newspaper and periodicals as indicated.

AGRICULTURAL MACHINERY PRODUCTION  
IN SOVIET ZONE GERMANY

Numbers in parentheses refer to appended source list.

Tractor Production

At the time of Germany's collapse there were about 30,000 tractors in the present German Democratic Republic. Many of them were old models, and about 30 percent were not completely serviceable. Many others soon became unserviceable because damage was not recognized in time and major repairs were subsequently required. Repairs were slow because of the shortage of replacement parts, which in the past had been furnished by factories in Western Germany. At present, there are 25 different models of tractors in use at the MAS (Machine Rental Stations), for which the fantastic number of 120,000 spare parts are needed.(1, 2)

The tractor situation was somewhat improved by the delivery of 1,000 tractors and 520 trucks from the USSR. Also, the Central Office for Agricultural Technology has now taken over the job of coordinating the supply of spare parts, and many tractors will soon be made completely serviceable again. Finally, great efforts have been made to develop the production of tractors and spare parts in the Soviet Zone.(1, 2)

Three plants have started mass production of tractors since mid-1949. Together they had produced 800 tractors by 1 February 1950. The plan for the entire year 1950 calls for the production of 5,410 tractors.(1, 2, 3)

The distributing agency for all three of these plants is the Central Office for Agricultural Technology, which is responsible for the distribution of all agricultural equipment as well as for spare parts and repair materials. Its particular job is to see to it that speculation and black-marketeering in such items is brought to an end.(2)

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The people-owned Brandenburg Tractor Plant at Brandenburg Havel is housed in the former Brennabor plant, which has been completely renovated. It employs 935 persons, including 80 apprentices who are being trained in a model workshop. A large number of these employees are still at work rebuilding the plant, but production has been started meanwhile. The first 50 tractors left the plant on 1 September 1949, and 126 had been produced by 12 October. The plant was expected to complete 300 tractors by the end of 1949 and 1,200 in 1950. The tractor produced in this plant, known as the "Aktivist," is an all-purpose, rubber-tired tractor with a 30-horsepower, two-cylinder, four-stroke Diesel engine. It comes equipped with power take-off and threshing attachment, and will shortly be made with a roof and windshield. (1, 2)

The IFA Tractor Plant in Nordhausen is a completely new, modern plant built since March 1949 on the property formerly owned by the Orenstein and Koppel enterprise. It includes a model apprentice shop where 60 apprentices are being trained. Construction was not scheduled for completion until the end of 1949, but production was started in August, and by 15 September 20 tractors had been produced. A month later the total had reached 64. This plant's share in the 1950 plan is set at 1,500 tractors. The tractors are built on the Deutz-Motor F 2/414 model and have 22-horsepower, two-cylinder, four-stroke Diesel engines. They are equipped with pneumatic tires, power take-off, and threshing attachment. Later models will have a roof over the cab and a windshield. (1, 2)

The Horch plant in Zwickau, another IFA plant, employs 400 workers and produces a 40-horsepower Diesel tractor which has recently been given the name "Pioneer." Up to 15 October 1949, the plant had produced 61 of these tractors. It is expected to produce 2,000 in 1950. (1, 2, 3)

#### 40-Horsepower IFA Tractor (4)

Inasmuch as the production of completely new tractors requires considerable time for research and experiment, the IFA Federation of People-Owned Vehicle Plants in Chemnitz decided on interim production according to old plans which had already been tested. Thus their 40-horsepower tractor is basically the same as the Model XL produced by the former FAMO plant (Vehicle and Engine Plant).

Production was started in IFA's Horch plant in Zwickau (Sachsen). In addition to an iron-tired model, a pneumatic-tired model is also produced. The latter can be used on roads as well as in fields, attaining a speed of 17.5 kilometers per hour. The iron-tired version can travel about 7 kilometers per hour in fields.

The four-cylinder Diesel engine develops 40 horsepower at 1,250 revolutions per minute. It operates on the so-called "turbulence chamber" principle, which limits wear and tear on the engine and is economical of fuel. For starting, the engine can be converted into a carburetor engine. When the hand crank is used, a separate combustion chamber, containing a spark plug, is brought into play. A high-voltage ignition magneto produces a powerful electric spark capable of igniting the gasoline-air mixture produced by a small starting carburetor. In this way, a strong man can easily start the engine alone. After the engine has heated up, it is switched to Diesel operation, because continuous operation on Otto fuel gasoline would damage the engine.

The air filter is particularly important. It consists of two oil filters which remove all dust from the air, and the air intake is about 2 meters above the ground so as to be as far as possible above the dust zone.

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The clutch, which transmits power to the variable gear, is of single-plate design and is equipped with a clutch brake to ease gear shifting. The engine and gear casing are fastened together and form a part of the chassis. This frameless, self-supporting construction is both simple and practical. Clutch, gears, and rear-axle drive are all enclosed in a single cast piece, hollow and shaped like a large tube.

There are five gears, which permit pneumatic-tired tractors to attain the following speeds: low -- about 4 kilometers per hour, ratio 78:1; second -- about 5 kilometers per hour, ratio 59:1; third -- about 6 kilometers per hour, ratio 48.75:1; fourth -- about 10 kilometers per hour, ratio 30.70:1; and high -- about 17.5 kilometers per hour, ratio 16.55:1.

The iron-tired tractors have the fourth and fifth gears so that they can be converted to pneumatic tires, but these gears are blocked so that they cannot be used without conversion. Shifting is done by a hand lever, but the gearshift positions are the reverse of those in ordinary vehicles.

In addition to the variable gears, which can be controlled by the operator, there are also other gears which cannot be shifted. These serve primarily as reduction gears.

The steering mechanism is a worm gear enclosed in the gear box, so that the worm gear is constantly lubricated by oil thrown by the gear wheels.

The front wheels are mounted with roller bearings on the steering knuckles, which are turned on the steering-knuckle pin by steering-knuckle arms. The pins are fastened firmly to the front axle, which is made of high-grade steel and is suspended from a leaf spring which is mounted crosswise.

The wheels of the iron-tired tractor are either pressed from sheet steel or welded from section steel. Cutting rims are attached to the front wheels for use in the fields to prevent slipping. Special cleats are also attached to the rear wheels. Plain rings can be screwed on over them so that they need not be removed when running on roads. Pneumatic-tired tractors have front wheels of pressed steel which take a tire size 6.50 extra - 20. The rear wheels are cast and have low-pressure tires, size 12.75 - 28. On both front and rear wheels the rim is sectional. The outer section can be removed by loosening the clamps around the rim, after the air has been let out of the tires.

The tractor has two entirely independent brakes: a hand brake which acts directly on the drive shaft and a foot brake which activates brake drums on the rear wheels. Both brakes have linings which can be replaced when they become so worn that they can no longer be tightened up.

For agricultural use, the tractor requires a number of attachments. Therefore, it is equipped with a power take-off which operates directly off the transmission in such a way that it is independent of the speed at which the tractor travels. With a standard motor rpm of 1,250, the take-off makes about 540 revolutions per minute, which means that it can be used for any of the standard attachments on the market. The take-off can be switched on and off independently. The power take-off can be used to operate a belt drive, which is furnished with the tractor on special request. The belt wheel has a diameter of 350 millimeters and makes 870 revolutions with a motor rpm of 1,250. There is a draw bar on the rear wall of the transmission housing to which trailer attachments can be coupled.

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## Specifications of the 40-Horsepower IFA Tractor

Weight of tractor (either iron or pneumatic tires)	3,200	kg
Wheel base	2,080	mm
Width between front wheels	1,290	"
Width between rear wheels	1,390	"
Minimum ground clearance		
Under front axle	240	"
Under rear axle	295	"
Maximum length	3,475	"
Maximum width	1,728	"
Maximum height	2,180	"
Engine power/revolutions	40/1250	hp/rpm
Piston displacement	5022	cu cm
Number of cylinders	4	
Piston stroke	145	mm
Cylinder diameter	105	"
Speed on the road	Pneumatic Tired	Iron Tired
	(km/hr)	
In low gear	3.8	4.5
In second gear	5.0	6.0
In third gear	6.0	7.2
In fourth gear	9.5	--
In high gear	17.5	--
In reverse	3.0	3.4

Production of Spare Parts for Agricultural Machinery (1)

The production of spare parts has not yet reached a satisfactory level and is being given the utmost consideration. One difficulty is the fact that the demand for spare parts is abnormally high, because the agricultural machinery in the Eastern Zone is 15 years old on the average. In normal times, machinery of such age would have been junked long since. Another difficulty is that new blueprints and models have to be made for the parts, because formerly the parts were not made in the Eastern Zone. As a result, not only are the production costs for replacement parts increased, but the time required for production is appreciably longer. Furthermore, the raw materials are not always supplied on time and often they are not of the requisite quality, since the Eastern Zone industry is not accustomed to supplying such items.

For example, the electric steel sheet delivered by the Thale Ironworks (Harz) for the production of mower blades frequently cracks during processing. Also, the sheets measure 1,000 x 2,000 millimeters, so that an additional process is necessary to cut them into strips of the proper size for processing into blades.

For nearly all firms producing agricultural machinery and spare parts, this is a new field, and some serious errors were made at first. There has also been a shortage of experienced personnel. In addition, the practices used at first resulted in considerable losses because of excess waste in processing and because many of the products were so carelessly made that they could not be used. Now, however, experience has led to improvements in technique and improved quality of the output.

At present, two or three firms in Thuringen and Sachsen are producing mower blades. If they could obtain sufficient electric steel sheet, they would be able to double their present output. They would then be able to fill orders for export as well as to cover all domestic needs.

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## New Rates for Rental of Agricultural Machinery (5)

A. Work Done for the Peasants by the Machine Rental Stations (MAS)  
(The prices listed cover the rental of a tractor plus the necessary trailer attachment. Crops other than those specified for payment in kind may be substituted according to the currently valid conversion scale.)

A - Work done by MAS tractors on peasant farms other than those specified under B and C.  
B - Work done by MAS tractors on medium-sized farms belonging to needy peasants (15% reduction).  
C - Work done by MAS tractors on small farms belonging to needy peasants (30% reduction).

## 1. Rates for Payment in Kind

	Food Plants (wheat)			Oil Plants (seeds, rape)			Potatoes		
	A	B	C	A	B	C	A	B	C
Deep plowing on light or average soil	41	35	29	9	8	6.5	200	170	140
Deep plowing on heavy soil	46	39	32	10	9	7	220	190	150
Preparation for sowing on light or average soil	34	29	24	7.5	6.5	5	165	140	115
Preparation for sowing on heavy soil	40	34	28	9	7.5	6	190	160	135
Drilling	6	5	4	1.5	1	0.5	30	25	20
Turning under sod	16	13.5	11	3.5	3	2.5	75	65	50
Cultivating	16	13.5	11	3.5	3	2.5	75	65	50
Harrowing or rolling	9	7.5	6	2	1.7	1.3	45	40	30
Cutting grain (not including cost of binder twine)	16	13.5	11	3.5	3	2.5	75	65	50
Digging potatoes	29	25	20	6.5	5.5	4.5	140	120	100
Digging other root crops	15	13	10.5	3.5	3	2.5	70	60	50
Mowing hay	8	7	5.5	2	1.5	1	40	35	30

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## 2. Rates for Payment in Cash

<u>Type of Work</u>	Payment for Working One Hectare (in Deutsche marks)		
	<u>A</u>	<u>B</u>	<u>C</u>
Deep plowing on light or average soil	41	35	29
Deep plowing on heavy soil	46	39	32
Preparation for sowing on light or average soil	34	29	24
Preparation for sowing on heavy soil	40	34	28
Drilling	6	5	4
Turning under sod	16	13.50	11
Cultivating	16	13.50	11
Harrowing or rolling	9	7.50	6
Cutting grain (not including cost of binder twine)	16	13.50	11
Digging potatoes	29	25	20
Digging other root crops	15	13	10.50
Mowing hay	8	7	5.50

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B. Rental of Agricultural Machinery and Equipment without Operating Personnel

Type of Machine or Equipment	Daily Rate (in Deutsche marks)		
	Basic Rate	With 15% Reduction	With 30% Reduction
Plows	2.00	1.70	1.40
Harrow	1.50	1.30	1.10
Rollers	1.50	1.30	1.10
Cambridge rollers	2.50	2.10	1.80
Cultivators	2.00	1.70	1.40
Horse-drawn drilling machines	4.50	3.80	3.20
Manure spreaders	6.50	5.50	4.60
Horse-drawn mowers	6.50	5.50	4.60
Reapers	8.00	6.80	5.60
Horse-drawn binders	17.00	14.50	11.90
Horse-drawn rakes and tedders	2.00	1.70	1.40
Potato diggers	8.00	6.80	5.60
Winnowers	2.00	1.70	1.40
Machines for cleaning grain (per 100 kilograms)	1.00	0.90	0.70
Separators (per 100 kilograms)	1.00	0.90	0.70
Electric motors, up to 2 horsepower	1.50	1.30	1.10
Electric motors, up to 7 horsepower	3.00	2.60	2.10
Electric motors, up to 10 horsepower	4.50	3.80	3.20
Electric motors, up to 14 horsepower	6.00	5.10	4.20
Electric motors, up to 20 horsepower	8.00	6.80	5.60
Electric motors, up to 28 horsepower	10.00	8.50	7.00
Electric motors, up to 40 horsepower	12.00	10.20	8.40

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